

What is claimed is:

1. A media advancing device for a hardcopy
apparatus comprising:

5 at least one roller having an outer surface and
being rotatable for advancing media, said outer surface
comprising a plurality of openings and a contact region
for engaging said media; and

a negative pressure mechanism for creating
10 negative pressure through at least a portion of said
openings.

2. The media advancing device according to claim 1,
wherein said negative pressure mechanism comprises at
15 least one vacuum source in communication with at least
one vacuum chamber, wherein said vacuum chamber is in
communication with at least a portion of said openings.

3. The media advancing device according to claim 1,
20 wherein said roller is partially housed in at least one
slot in said negative pressure mechanism such that said

openings provide an entrance for air through said slot into said negative pressure mechanism.

4. The media advancing device according to claim 2,
5 wherein said roller is partially housed in at least one slot above said vacuum chamber, and said openings are in said contact region and provide the only entrance for air through said slot into said vacuum chamber.

10 5. The media advancing device according to claim 4, further comprising at least one shim disposed above said slot and having a gap, said gap aligning over at least a portion of said contact region.

15 6. The media advancing device according to claim 5, wherein said shim further comprises at least one transverse rib forming a plurality of smaller gaps.

7. The media advancing device according to claim 6,
20 wherein said smaller gaps are about equal in size.

8. The media advancing device according to claim 5,
wherein said shim is made of a flexible material.

9. The media advancing device according to claim 1,
5 wherein said openings are circular.

10. The media advancing device according to claim 1,
wherein said openings are equidistantly spaced apart.

10 11. The media advancing device according to claim 1,
wherein said outer surface further comprises a coating
having a high coefficient of friction.

12. The media advancing device according to claim 1,
15 wherein said roller further comprises at least one
axial exhaust and said negative pressure mechanism
comprises at least one vacuum source in communication
with said axial exhaust, said axial exhaust being in
communication with at least a portion of said openings.

20

13. A media advancing device for a hardcopy
apparatus comprising:

at least one roller having an outer surface with a contact region for engaging media and rotatable for advancing said media; and

a negative pressure mechanism for creating
5 negative pressure that is radial to at least a portion
of said contact region.

14. The media advancing device according to claim 13,
wherein said outer surface further comprises a
10 plurality of openings and said negative pressure
mechanism comprises at least one vacuum source in
communication with at least one vacuum chamber, said
vacuum chamber being in communication with at least a
portion of said openings.

15. The media advancing device according to claim 14,
wherein said roller is partially housed in at least one
slot in said negative pressure mechanism such that said
openings provide an entrance for air through said slot
into said negative pressure mechanism.

16. The media advancing device according to claim 14, wherein said roller is partially housed in at least one

slot above said vacuum chamber, and said openings are in said contact region and provide the only entrance for air through said slot into said vacuum chamber.

5

17. The media advancing device according to claim 16, further comprising at least one shim disposed above said slot and having a gap, said gap aligning over at least a portion of said contact region.

10

18. The media advancing device according to claim 17, wherein said shim further comprises at least one transverse rib forming a plurality of smaller gaps.

15 19. The media advancing device according to claim 18, wherein said smaller gaps are about equal in size.

20. The media advancing device according to claim 17, wherein said shim is made of a flexible material.

20

21. The media advancing device according to claim 14, wherein said openings are circular.

22. The media advancing device according to claim 14,
wherein said openings are equidistantly spaced apart.

5 23. The media advancing device according to claim 13,
wherein said outer surface further comprises a coating
having a high coefficient of friction.

24. The media advancing device according to claim 13,
10 wherein said roller further comprises at least one
axial exhaust, said outer surface further comprises a
plurality of openings and said negative pressure
mechanism comprises at least one vacuum source in
communication with said axial exhaust, said axial
15 exhaust being in communication with at least a portion
of said openings.

25. A method of advancing a media in a hardcopy
apparatus comprising:

20 advancing a media to contact the contact region on a
roller having a plurality of openings;

generating a negative pressure distribution between said media and said contact region wherein said negative pressure is through at least a portion of said openings in said contact region;

5 further advancing said media by rotating said
roller.

25